Seminar Announcement

Dr. Christie Nelson

Brookhaven National Laboratory

Date: Friday, October 12, 2001
Time: 10:30 a.m.
Coffee: 10:00 a.m.
Place: Building 3 Room 107
Host: Dr. Vincent Harris, Code 6340 (ext. 767-6249)

"Charge and Orbital Ordering in Perovskite Manganites"

Abstract

X-ray scattering is a powerful tool for studies of the complex ordering exhibited by perovskite manganites ($R_{1-x}M_xMnO_3$ where R and M are trivalent rare-earth and divalent alkaline cations, respectively). In these materials, the ordering is determined by the interplay of the charge, orbital, lattice, and spin degrees of freedom, and small changes in weight among these four degrees of freedom can have very large effects. One obvious example of such a perturbation is doping, which in some systems results in low temperature phases ranging from ferromagnetic metallic to charge and orbitally ordered, antiferromagnetic, insulating. Other examples of perturbations include valence-conserving cation substitution, substrate-induced strain effects, and the application of magnetic field. In this talk, x-ray scattering studies of the effects of these perturbations on the ordering exhibited by several types of perovskite manganite are described.